METHOD FOR MEASURING SIGNAL AND ELECTRONIC DEVICE THEREOF

PRIORITY

[0001] This application claims priority under 35 U.S.C. §119(a) to a Korean Patent Application filed in the Korean Intellectual Property Office on Jul. 20, 2015, and assigned Serial No. 10-2015-0102534, the entire content of which is incorporated herein by reference.

BACKGROUND

[0002] 1. Field of the Disclosure

[0003] The present disclosure relates generally to a method and apparatus for detecting a state of an electronic device in the electronic device.

[0004] 2. Description of the Related Art

[0005] An electronic device has various sensors, thereby being capable of detecting information about the electronic device, or information of surroundings in which the electronic device is located. By using a signal detected by the sensor, the electronic device can detect a state in which the electronic device is placed or a state of the surroundings in which the electronic device is located. For example, the sensor can be a geomagnetic sensor. The electronic device can measure an azimuth angle of the Earth by an output of the geomagnetic sensor. By using the azimuth angle, the electronic device can display a map direction in a map application or display points of interest suitable to a direction in which a user looks in an augmented reality application.

[0006] Further, an electronic device may perform various functions in association with other devices. For example, the electronic device may consist of a main device (e.g., a mobile phone) and a wearable device (e.g., a watch phone). The wearable device may perform a communication function with other devices by means of the main device (e.g., mobile phone) or independently. However, due to instrument limitations, the wearable device cannot mount a hardware construction mounted on the main device. For example, the hardware constituent element may be the geomagnetic senor.

[0007] The geomagnetic sensor cannot be mounted on the wearable device because of problems such as a peripheral environment (e.g., a metal housing) causing a change in geomagnetic measurement, size, or a product price.

[0008] A wearable device or a small electronic device may have a limitation in mounting a component due to hardware or instrumental limitations. For example, the small electronic device may have a difficulty in mounting a geomagnetic sensor.

SUMMARY

[0009] The present disclosure has been made to address at least the problems and disadvantages described above, and to provide at least the advantages described below.

[0010] Accordingly, an aspect of the present disclosure is to provide a method for measuring a signal and an electronic device.

[0011] Accordingly, another aspect of the present disclosure is to provide a method for an electronic device to acquire an azimuth angle of the electronic device dependent on a heading direction of the device using sensors. The sensors may be a geomagnetic sensor, an acceleration sensor, a gyro sensor, etc.

[0012] Accordingly, another aspect of the present disclosure is to provide a method for a first electronic device lacking a geomagnetic sensor to operate as a compass by acquiring, from a second electronic device having a geomagnetic sensor, direction information, including an azimuth angle, of the heading direction of the second electronic device, and thus, determine an azimuth angle of the first electronic device based on the acquired direction information of the second electronic device.

[0013] Accordingly, another aspect of the present disclosure is to provide a method for a first electronic device lacking a geomagnetic sensor to operate as a compass by correcting direction information acquired by a second electronic device having a geomagnetic sensor by using direction information, such as heading direction, posture, and rotation information, acquired by other sensors of the first electronic device. By correcting the direction information acquired from the second electronic device with direction information of the first electronic device, a more accurate azimuth angle of the first electronic device may be determined.

[0014] Accordingly, an aspect of the present disclosure is to provide a method for a first electronic device, e.g. a wearable device, not equipped with a geomagnetic sensor to receive geomagnetic sensor information from a second electronic device, e.g., a mobile phone, equipped with the geomagnetic sensor, and process the received output of the geomagnetic sensor of the second electronic device based on a heading direction of the first electronic device and thereby generate azimuth angle information of the first electronic device. Because the wearable device does not need to mount the geomagnetic sensor, it may produce a cost savings, and also prevent the wearable device from being affected by a magnetic field generated within the device as a result of mounting a geomagnetic sensor thereon.

[0015] In accordance with an aspect of the present disclosure, a method for operating a first electronic device includes detecting a movement of the first electronic device, receiving direction information of a second electronic device, and determining an azimuth angle of a heading direction of the first electronic device based on the received direction information of the second electronic device.

[0016] In accordance with another aspect of the present disclosure, a first electronic device includes a sensor for detecting a movement of the first electronic device, a communication unit for receiving direction information of a second electronic device, and a processor for determining an azimuth angle of a heading direction of the first electronic device based on the received direction information of the second electronic device.

[0017] In accordance with another aspect of the present disclosure, an electronic device includes at least one sensor for detecting a movement of the electronic device, a display, and at least one processor. The at least one processor controls to receive direction information of another electronic device, and determine an azimuth angle of a heading direction of the electronic device based on the received direction information of the other electronic device, and display information corresponding to the determined azimuth angle of the heading direction the electronic device through the display.